



AAEON Technology INC.
ISO-9001/ISO-14001 Certified
Industrial Automation PCs

PCM-4896

Reliability Prediction Report

(MTBF)

Release Date: Nov. 25th, 1999

Issue Stamp

QA Manager

QE Manager

Test Engineer



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Release Date: Nov. 25th, 1999

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QA Manager

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Test Engineer

Reliability Prediction (MTBF)

I . Model Name: PCM-4896

II . Description: MediaGX Little Board with LCD, Ethernet, Audio, & 4 COMs

III . Prediction Date: Nov. 25th, 1999

IV. Prediction Site: AAEON QE Dept.

V . Predicted by : Chasel Wang

VI. Equipment: Relx Ver.7.0 Visual Reliability Software

VII. Simulation Environment:

- **Temperature: 25 degrees C**
- **Standard: Telcordia (Bellcore) Standard**

VIII. Prediction Result:

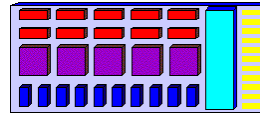
- **Failure Rate: 8.273241 ppm**
- **MTBF: 120,872. hours**

IX. Term and Definition:

- **Unit** **An assembly of device.**
- **Duty Cycle** **Used to specify the percentage of time that the element is in an on state, and it is equal to the percentage of total time the item is in the active environment.**
- **Quantity** **The quantity of the selected item.**
- **Failure Rate** **Used to specify that the failure rate is to be calculated based the selected calculation models. The multiplier is 1,000,000.**
- **MTBF** **MTBF is always specified in hours.**

AAEON Reliability Prediction Report

Part Number 9697489616~17
Reference Des
Date 11. 25, 1999
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

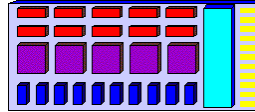


Description Top-level assembly
File Name 4896b12.RPJ
Time 11:57 AM
Failure Rate 8.273241
MTBF 120,872

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
PCM-4896	9697489616~17	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	8.273241	120,872

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Part Number 9697489616~17
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Date 11. 25, 1999
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

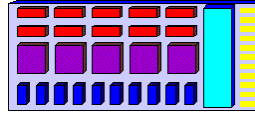


Description Top-level assembly
File Name 4896b12.RPJ
Time 11:57 AM
Failure Rate 8.273241
MTBF 120,872

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
106B501030	Resistor	J2	Bellcore Issue 6	Level I		0.011379	1.00	.1375	0.011379	87878027.07
1119610291	Capacitor	F1-2,F5-6,C12	Bellcore Issue 6	Level I		0.075338	5.00	4.5531	0.376691	13273483.15
1119610293	Capacitor	F3-4	Bellcore Issue 6	Level I		0.071121	2.00	1.7193	0.142243	14060484.33
1211100100	Inductor	L3	Bellcore Issue 6	Level I		0.086173	1.00	1.0416	0.086173	11604581.32
1211102762	Inductor	L1	Bellcore Issue 6	Level I		0.086173	1.00	1.0416	0.086173	11604581.32
1212106350	Inductor	L4	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
1231143180	Miscellaneous	Y1	Bellcore Issue 6	Level I		0.150000	1.00	1.8131	0.150000	6666666.67
1231232720	Miscellaneous	Y2	Bellcore Issue 6	Level I		0.150000	1.00	1.8131	0.150000	6666666.67
1651003222	Connection	U4	Bellcore Issue 6	Level I		0.018207	1.00	.2201	0.018207	54923766.92
1651584490	Connection	DIMM1	Bellcore Issue 6	Level I		0.095587	1.00	1.1554	0.095587	10461669.89
1651605920	Connection	U7	Bellcore Issue 6	Level I		0.182640	1.00	2.2076	0.182640	5475266.48
1652508204	Connection	CN12	Bellcore Issue 6	Level I		0.004552	1.00	.0550	0.004552	219695067.68
1653002100	Connection	J5	Bellcore Issue 6	Level I		0.001138	1.00	.0138	0.001138	878780270.71
1653002101	Connection	J1	Bellcore Issue 6	Level I		0.001138	1.00	.0138	0.001138	878780270.71
1653003101	Connection	J4,J8-10	Bellcore Issue 6	Level I		0.001707	4.00	.0825	0.006828	58585315.81
1653003200	Connection	LED1	Bellcore Issue 6	Level I		0.003414	1.00	.0413	0.003414	292926756.90
1653003201	Connection	J6,J11-14	Bellcore Issue 6	Level I		0.003414	6.00	.2476	0.020483	292926756.90
1653004200	Connection	CN2,CN5	Bellcore Issue 6	Level I		0.004552	2.00	.1100	0.009104	219695067.68
1653004205	Connection	CN8	Bellcore Issue 6	Level I		0.003983	1.00	.0481	0.003983	251080077.35
1653005100	Connection	CN6	Bellcore Issue 6	Level I		0.002845	1.00	.0344	0.002845	351512108.28
1653005201	Connection	CN15	Bellcore Issue 6	Level I		0.005690	1.00	.0688	0.005690	175756054.14
1653020200	Connection	CN13	Bellcore Issue 6	Level I		0.022759	1.00	.2751	0.022759	43939013.54
1653025201	Connection	CN7	Bellcore Issue 6	Level I		0.028449	1.00	.3439	0.028449	35151210.83
1653120225	Connection	CN3	Bellcore Issue 6	Level I		0.022759	1.00	.2751	0.022759	43939013.54
1653132220	Connection	CN1	Bellcore Issue 6	Level I		0.036414	1.00	.4401	0.036414	27461883.46
1653207200	Connection	CN10	Bellcore Issue 6	Level I		0.007966	1.00	.0963	0.007966	125540038.67
1653208200	Connection	CN9	Bellcore Issue 6	Level I		0.009104	1.00	.1100	0.009104	109847533.84
1653213201	Connection	CN11	Bellcore Issue 6	Level I		0.014793	1.00	.1788	0.014793	67598482.36
1653217202	Connection	CN14	Bellcore Issue 6	Level I		0.019345	1.00	.2338	0.019345	51692957.10
1653222200	Connection	CN4	Bellcore Issue 6	Level I		0.025035	1.00	.3026	0.025035	39944557.76
16542C0200	Connection	PC11	Bellcore Issue 6	Level I		0.068276	1.00	.8253	0.068276	14646337.85

AAEON Reliability Prediction Report

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Reference Des
Date 11. 25, 1999
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

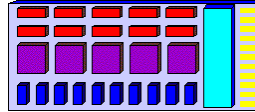


Description Top-level assembly
File Name 4896b12.RPJ
Time 11:57 AM
Failure Rate 8.273241
MTBF 120,872

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
101A710029	Resistor	R14,R17,R21-22,R36-37,R40,R59,-R61,R68,R71,R79,R92-93,R126-127,R134-135,R137,R143,R154,R157-,R170,R188,R196,R206,R209-210,-R214,R220-222,R232-234,R237-239,R244-248,R250-252,R255,R262-264,R268-271,R277,R293-294,R2-96-297	Bellcore Issue 6	Level I		0.002268	59.00	1.6172	0.133795	440974090.03
101A715029	Resistor	R201,R204,R212,R215,R228,R290-R298	Bellcore Issue 6	Level I		0.002268	7.00	.1919	0.015874	440974090.03
101A733009	Resistor	R106,R178,R183,R217,R219,R223-R281	Bellcore Issue 6	Level I		0.002268	7.00	.1919	0.015874	440974090.03
101A747009	Resistor	R69,R87-89	Bellcore Issue 6	Level I		0.002268	4.00	.1096	0.009071	440974090.03
1059502831	Resistor	R7	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
1059511501	Resistor	R5	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
1059517421	Resistor	R6	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
1059519601	Resistor	R4	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
1059522131	Resistor	R8	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
1059530121	Resistor	R9	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
1059700001	Resistor	L25,R208	Bellcore Issue 6	Level I		0.002268	2.00	.0548	0.004535	440974090.03
1059710059	Resistor	R74,R165	Bellcore Issue 6	Level I		0.013606	2.00	.3289	0.027212	73495681.67
105A502833	Resistor	R32	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
105A521033	Resistor	R34	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
105A528713	Resistor	R55	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
105A549963	Resistor	R52-53,R166,R168	Bellcore Issue 6	Level I		0.002268	4.00	.1096	0.009071	440974090.03
105A556003	Resistor	R191,R235	Bellcore Issue 6	Level I		0.002268	2.00	.0548	0.004535	440974090.03
105A560423	Resistor	R29,R35	Bellcore Issue 6	Level I		0.002268	2.00	.0548	0.004535	440974090.03
105A571533	Resistor	R57	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
105A700303	Resistor	R25,R31	Bellcore Issue 6	Level I		0.002268	2.00	.0548	0.004535	440974090.03
105A701523	Resistor	R225	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
105A701823	Resistor	R176	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
105A702033	Resistor	R253,R257,R261,R266	Bellcore Issue 6	Level I		0.002268	4.00	.1096	0.009071	440974090.03
105A702233	Resistor	R19	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03

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Date 11. 25, 1999
Environment GF, GU - Ground Fixed, Uncontrolled
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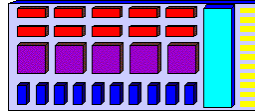


Description Top-level assembly
File Name 4896b12.RPJ
Time 11:57 AM
Failure Rate 8.273241
MTBF 120,872

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A702723	Resistor	R91,R94,R100,R103,R148,R151-1-52,R155,R158,R161-162	Bellcore Issue 6	Level I		0.002268	11.00	.3015	0.024945	440974090.03
105A704733	Resistor	R273-274,R278-279,R282-284	Bellcore Issue 6	Level I		0.002268	7.00	.1919	0.015874	440974090.03
105A705103	Resistor	R138	Bellcore Issue 6	Level I		0.002268	1.00	.0274	0.002268	440974090.03
105A710033	Resistor	R67,R259-260,R272	Bellcore Issue 6	Level I		0.002268	4.00	.1096	0.009071	440974090.03
1121701050	Capacitor	C65,C82-85	Bellcore Issue 6	Level I		0.002539	5.00	.1534	0.012695	393852661.82
1122701680	Capacitor	C25,M1-86,M88-153	Bellcore Issue 6	Level I		0.001598	153.00	2.9544	0.244427	625953979.55
1122747880	Capacitor	C75	Bellcore Issue 6	Level I		0.001598	1.00	.0193	0.001598	625953979.55
1124501780	Capacitor	C20,C22-24,C56,C59,C67,C71	Bellcore Issue 6	Level I		0.001060	8.00	.1025	0.008482	943198589.05
1124510080	Capacitor	C81	Bellcore Issue 6	Level I		0.001060	1.00	.0128	0.001060	943198589.05
1124510180	Capacitor	C43-44,C46-47,C57-58,C60,C94,C-114	Bellcore Issue 6	Level I		0.001060	9.00	.1153	0.009542	943198589.05
1124510280	Capacitor	C86-88,C90-93	Bellcore Issue 6	Level I		0.001060	7.00	.0897	0.007422	943198589.05
1124515080	Capacitor	C5-7,C13,C36-42,C52-55,C69	Bellcore Issue 6	Level I		0.001060	16.00	.2050	0.016964	943198589.05
1124515180	Capacitor	C16	Bellcore Issue 6	Level I		0.001060	1.00	.0128	0.001060	943198589.05
1124515281	Capacitor	C11,C17	Bellcore Issue 6	Level I		0.001060	2.00	.0256	0.002120	943198589.05
1124522180	Capacitor	C66,C70,C100,C106,C119-148	Bellcore Issue 6	Level I		0.001060	34.00	.4357	0.036048	943198589.05
1124533080	Capacitor	C26,C77	Bellcore Issue 6	Level I		0.001060	2.00	.0256	0.002120	943198589.05
1124547080	Capacitor	C27-30,C104-105,C108-109,C111,-C115-116	Bellcore Issue 6	Level I		0.001060	11.00	.1410	0.011662	943198589.05
1124547180	Capacitor	C98-99,C101-102,C107,C110,C112-113	Bellcore Issue 6	Level I		0.001060	8.00	.1025	0.008482	943198589.05
1129610290	Capacitor	C103	Bellcore Issue 6	Level I		0.000721	1.00	.0087	0.000721	1386692719.24
1129701080	Capacitor	C73-74,C79,C95-97,C117,M87	Bellcore Issue 6	Level I		0.002722	8.00	.2632	0.021778	367335960.60
1141601090	Capacitor	C21	Bellcore Issue 6	Level I		0.002357	1.00	.0285	0.002357	424256814.77
1141610050	Capacitor	F7-F23,C10,C14,C61-64,C68,C72,-C76,C78,C80,C89,C149	Bellcore Issue 6	Level I		0.002357	31.00	.8832	0.073069	424256814.77
1143610080	Capacitor	C2,C4	Bellcore Issue 6	Level I		0.001300	2.00	.0314	0.002600	769190708.12
1149610180	Capacitor	C1,C8-9,C15,C18-19,C31-35,C45,-C48,C50-51	Bellcore Issue 6	Level I		0.002502	15.00	.4536	0.037523	399749835.57
1149633190	Capacitor	C3	Bellcore Issue 6	Level I		0.004535	1.00	.0548	0.004535	220487045.01
1212303160	Inductor	L10,L14,L16,L24,L26-27	Bellcore Issue 6	Level I		0.002268	6.00	.1645	0.013606	440974090.03
1212306031	Inductor	L15,L17-18,L28-29,L32,L34-35,L37-45	Bellcore Issue 6	Level I		0.002268	18.00	.4934	0.040819	440974090.03

AAEON Reliability Prediction Report

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Date 11. 25, 1999
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00



Description Top-level assembly
File Name 4896b12.RPJ
Time 11:57 AM
Failure Rate 8.273241
MTBF 120,872

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1212308050	Inductor	L2,L5-L9,L11-13,L20-23,L30-31,L33-L46-49	Bellcore Issue 6	Level I		0.002268	20.00	.5482	0.045354	440974090.03
1233314351	Miscellaneous	X1	Bellcore Issue 6	Level I		0.360000	1.00	4.3514	0.360000	2777777.78
1233350050	Miscellaneous	OSC1	Bellcore Issue 6	Level I		0.360000	1.00	4.3514	0.360000	2777777.78
1300001240	Semiconductor	D9	Bellcore Issue 6	Level I		0.011940	1.00	.1443	0.011940	83748655.15
1300034040	Semiconductor	ZD1	Bellcore Issue 6	Level I		0.023881	1.00	.2887	0.023881	41874327.58
1300414800	Semiconductor	D1,D3-8	Bellcore Issue 6	Level I		0.023881	7.00	2.0206	0.167167	41874327.58
1302001240	Semiconductor	Q7	Bellcore Issue 6	Level I		0.023881	1.00	.2887	0.023881	41874327.58
1304100540	Semiconductor	D2	Bellcore Issue 6	Level I		0.004877	1.00	.0589	0.004877	205063180.81
1310222210	Semiconductor	Q5-6,Q8	Bellcore Issue 6	Level I		0.012017	3.00	.4357	0.036050	83216638.38
1314108312	Integrated Circuit	Q1	Bellcore Issue 6	Level I	4.00	0.079239	1.00	.9578	0.079239	12620044.05
1315500310	Semiconductor	Q2,Q3	Bellcore Issue 6	Level I	2.00	0.168561	2.00	4.0749	0.337122	5932564.95
1428474008	Integrated Circuit	U20	Bellcore Issue 6	Level I	4.00	0.077780	1.00	.9401	0.077780	12856786.34
1428474125	Integrated Circuit	U17	Bellcore Issue 6	Level I	3.00	0.074382	1.00	.8991	0.074382	13444079.84
14S1486300	Integrated Circuit	U23	Bellcore Issue 6	Level I	10.00	0.120485	1.00	1.4563	0.120485	8299772.79
14S2143000	Integrated Circuit	U2	Bellcore Issue 6	Level I		0.059366	1.00	.7176	0.059366	16844654.92
14S2252600	Integrated Circuit	U11	Bellcore Issue 6	Level I	2.00	0.068653	1.00	.8298	0.068653	14566106.82
14S3128400	Integrated Circuit	U32,U33	Bellcore Issue 6	Level I	4.00	0.066872	2.00	1.6166	0.133744	14953985.30
14S3149100	Integrated Circuit	U5	Bellcore Issue 6	Level I	4.00	0.079239	1.00	.9578	0.079239	12620044.05
14S3181900	Integrated Circuit	U22	Bellcore Issue 6	Level I	11.00	0.073313	1.00	.8861	0.073313	13640096.66
14S4021300	Integrated Circuit	TF1	Bellcore Issue 6	Level I		0.059366	1.00	.7176	0.059366	16844654.92
14S4021300	Integrated Circuit	U28-31	Bellcore Issue 6	Level I	5.00	0.085069	4.00	4.1130	0.340277	11755142.30
14S4048500	Integrated Circuit	U26-27	Bellcore Issue 6	Level I	1.00	0.042669	2.00	1.0315	0.085337	23436397.68
14S4070600	Integrated Circuit	U16	Bellcore Issue 6	Level I	5.00	0.085069	1.00	1.0282	0.085069	11755142.30
14S4378100	Integrated Circuit	U3	Bellcore Issue 6	Level I		0.059366	1.00	.7176	0.059366	16844654.92
14S4553010	Integrated Circuit	U14	Bellcore Issue 6	Level I	5.00	0.052468	1.00	.6342	0.052468	19059380.43
14S4731700	Integrated Circuit	U24	Bellcore Issue 6	Level I	4.00	0.049558	1.00	.5990	0.049558	20178332.80
14S4813902	Integrated Circuit	U10	Bellcore Issue 6	Level I	8.00	0.062123	1.00	.7509	0.062123	16097220.79
14S4866100	Integrated Circuit	U25	Bellcore Issue 6	Level I	5.00	0.052468	1.00	.6342	0.052468	19059380.43
14S4900000	Integrated Circuit	U18	Bellcore Issue 6	Level I	11.00	0.073313	1.00	.8861	0.073313	13640096.66
14S5324500	Integrated Circuit	U37	Bellcore Issue 6	Level I		0.038318	1.00	.4632	0.038318	26097332.06

